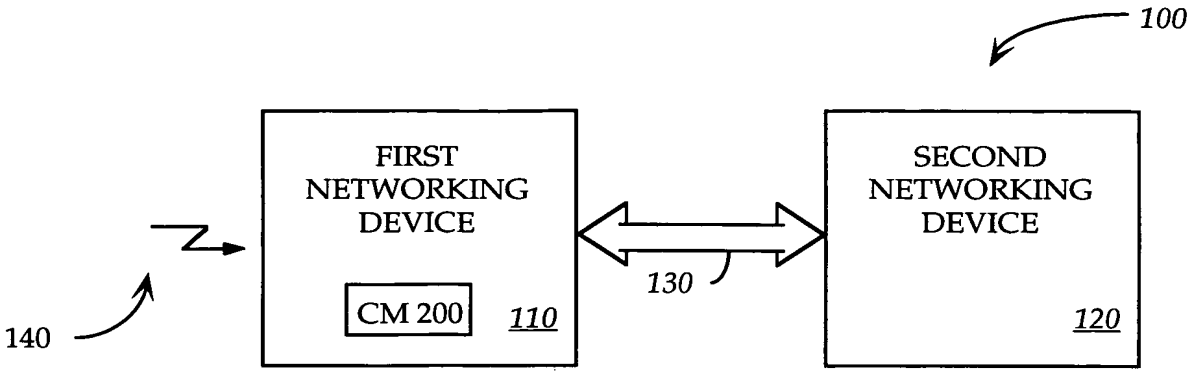

Figure 1

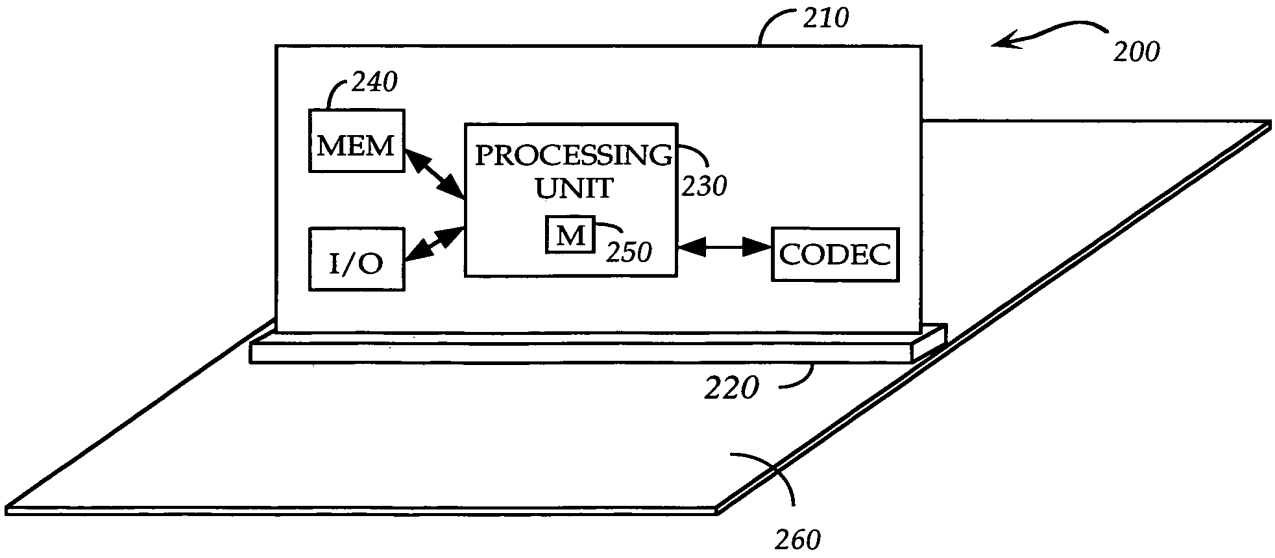

Figure 2

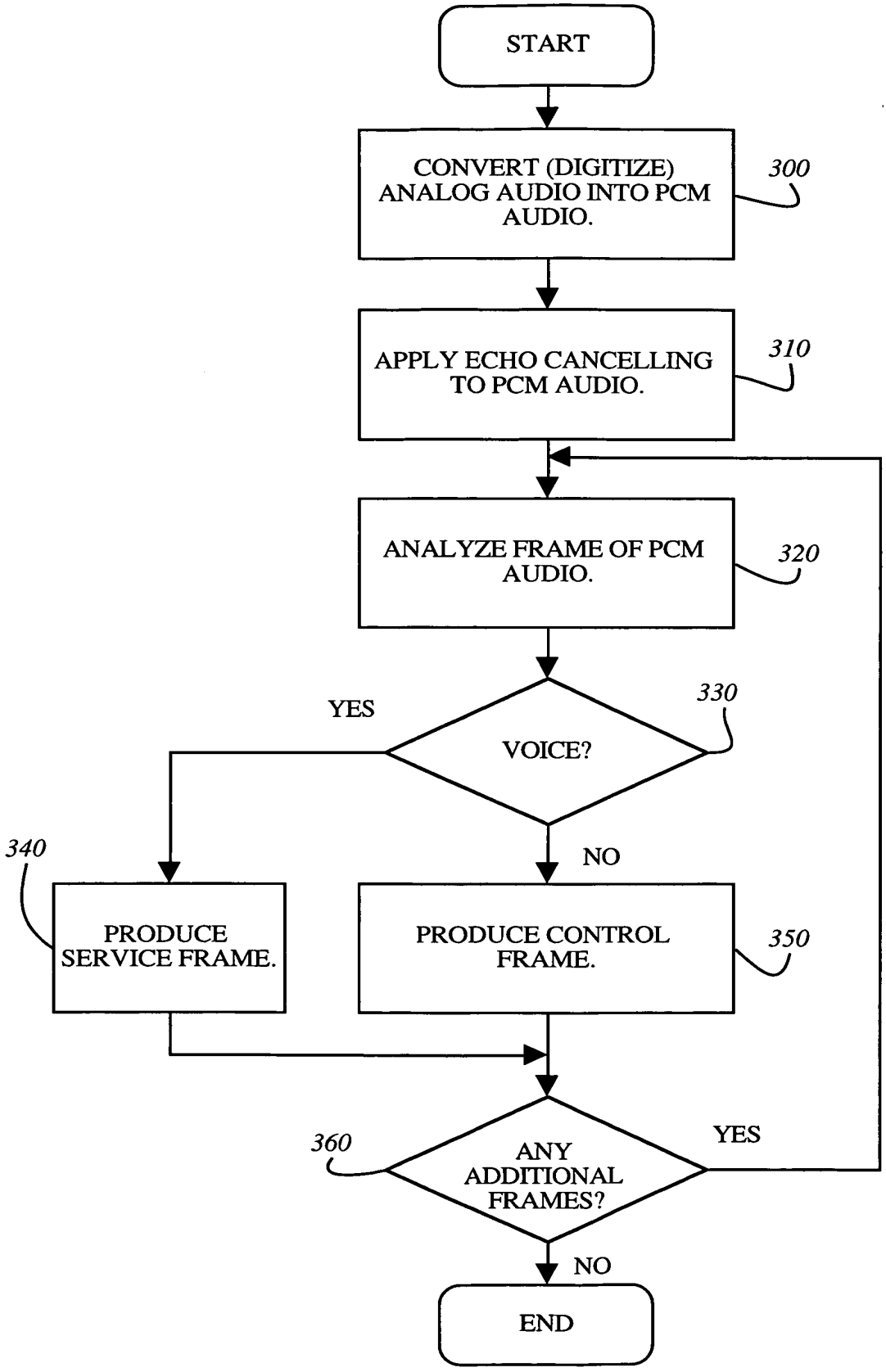
START
CONVERT (DIGITIZE) ANALOG AUDIO INTO PCM AUDIO.
300
APPLY ECHO CANCELLING TO PCM AUDIO.
310
ANALYZE FRAME OF PCM AUDIO.
320
VOICE?
330
YES
NO
340
PRODUCE SERVICE FRAME.
PRODUCE CONTROL FRAME.
350
ANY ADDITIONAL FRAMES?
360
YES
NO
END

Figure 3

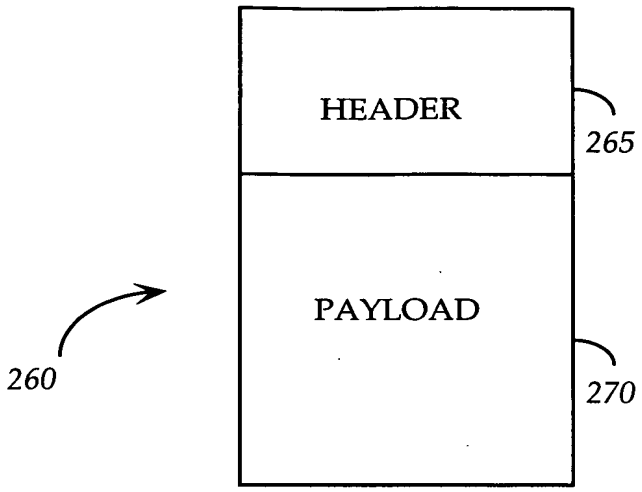

Figure 4

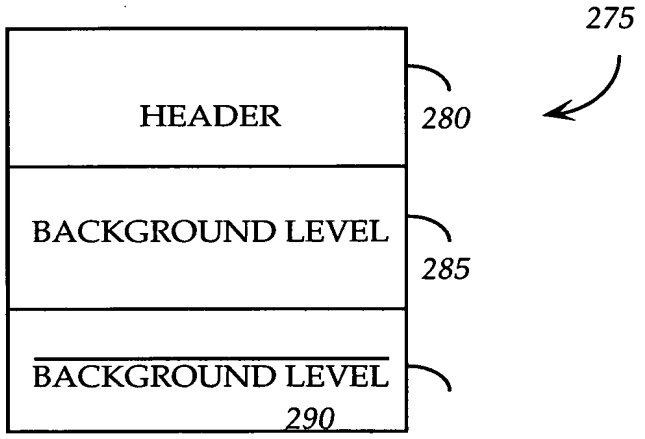

Figure 5

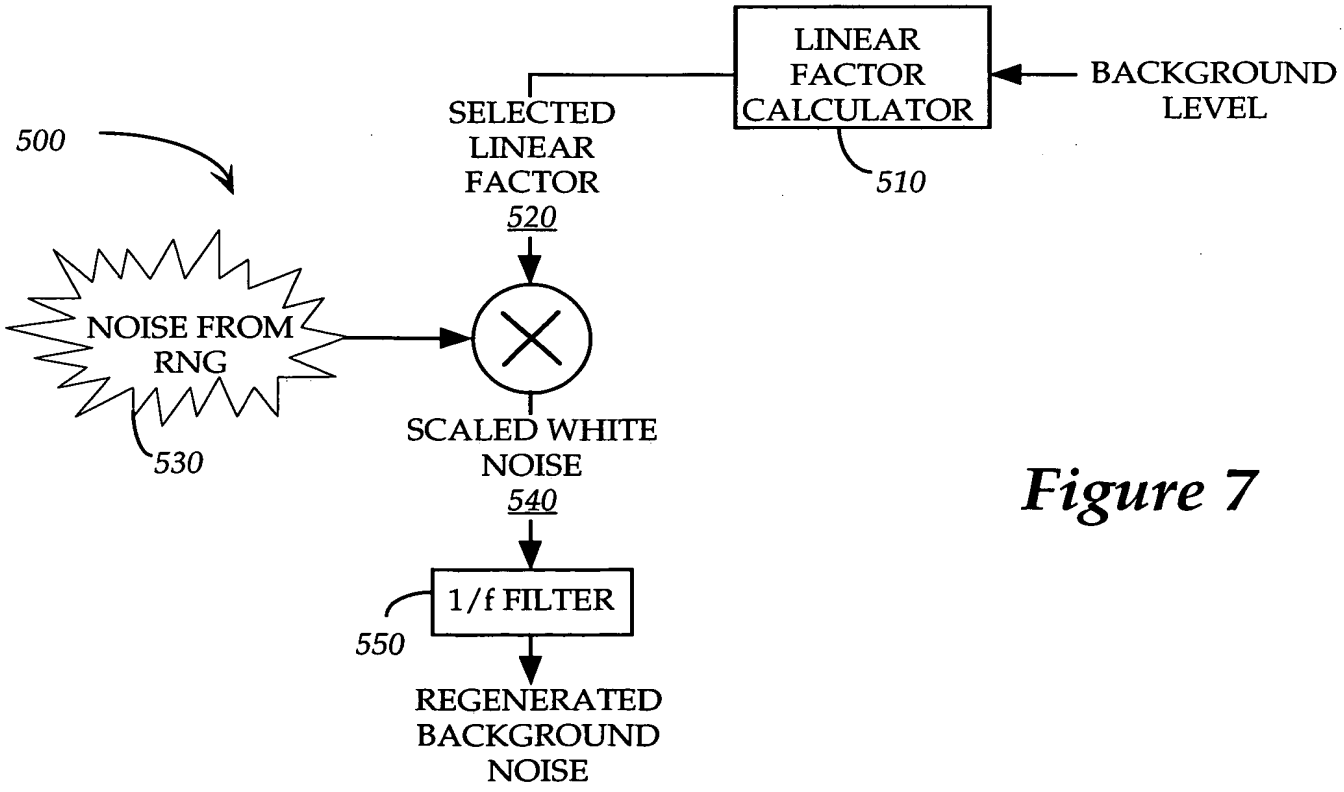

Figure 7

86n180 2/28n60

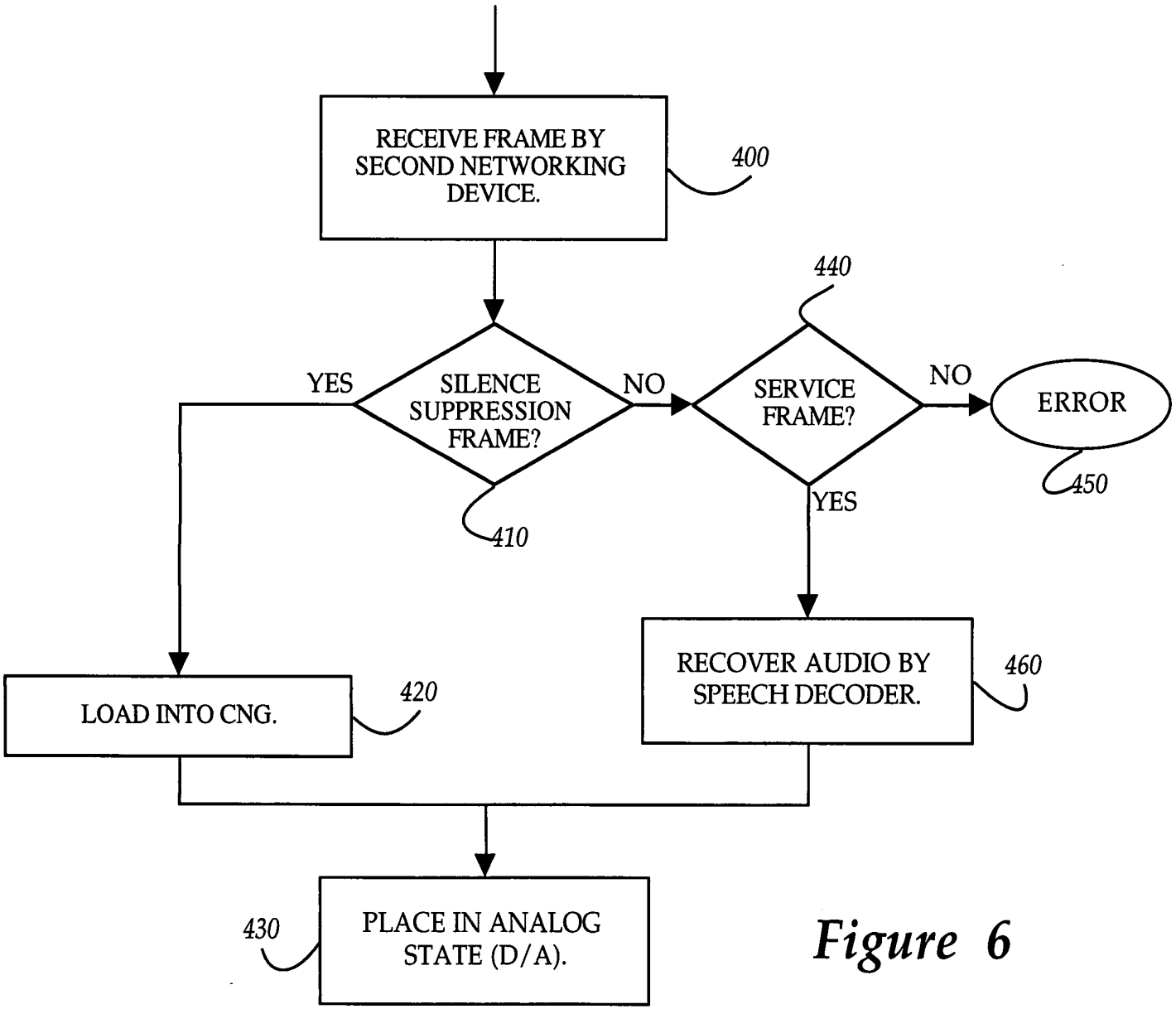

Figure 6

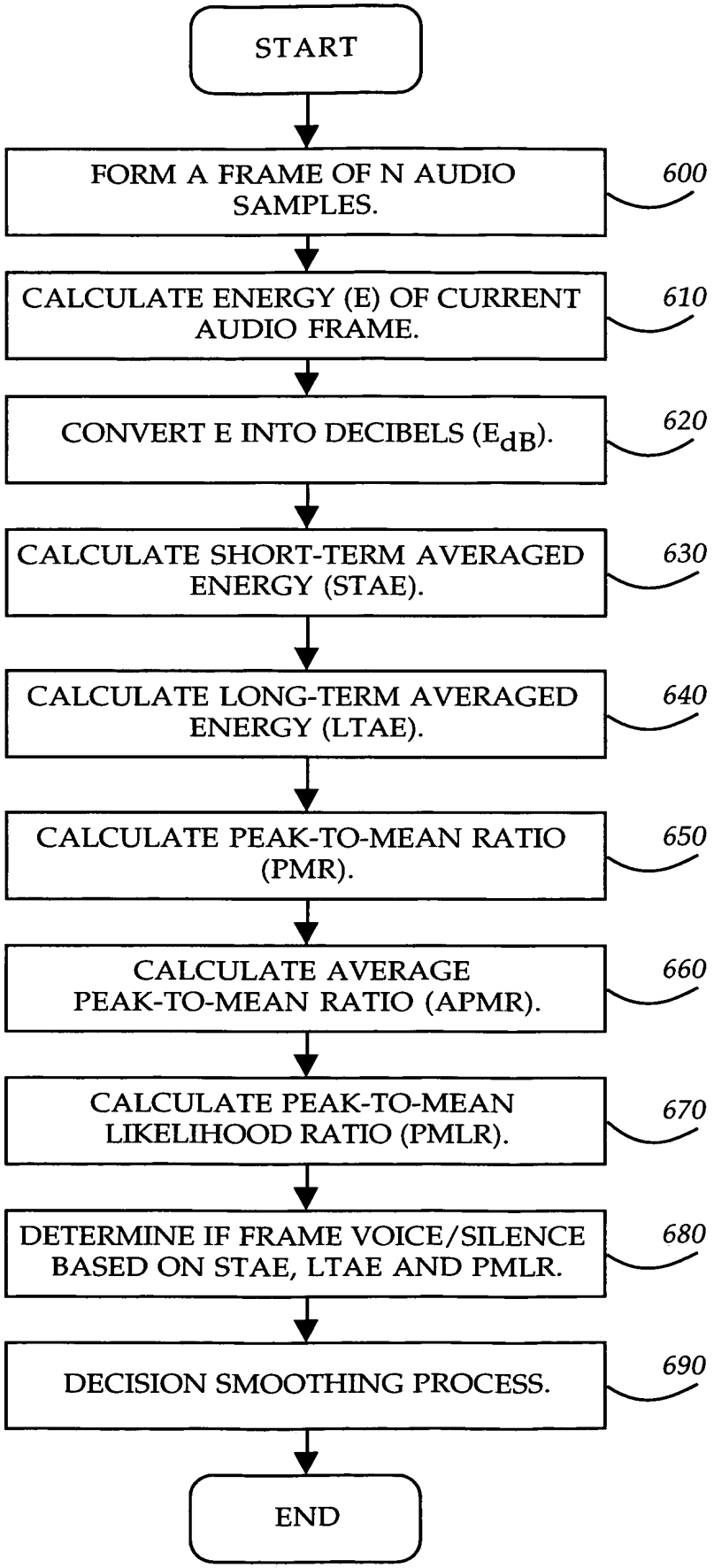
START
FORM A FRAME OF N AUDIO SAMPLES.
600
CALCULATE ENERGY (E) OF CURRENT AUDIO FRAME.
610
CONVERT E INTO DECIBELS (E_{dB}).
620
CALCULATE SHORT-TERM AVERAGED ENERGY (STAE).
630
CALCULATE LONG-TERM AVERAGED ENERGY (LTAE).
640
CALCULATE PEAK-TO-MEAN RATIO (PMR).
650
CALCULATE AVERAGE PEAK-TO-MEAN RATIO (APMR).
660
CALCULATE PEAK-TO-MEAN LIKELIHOOD RATIO (PMLR).
670
DETERMINE IF FRAME VOICE/SILENCE BASED ON STAE, LTAE AND PMLR.
680
DECISION SMOOTHING PROCESS.
690
END

Figure 8

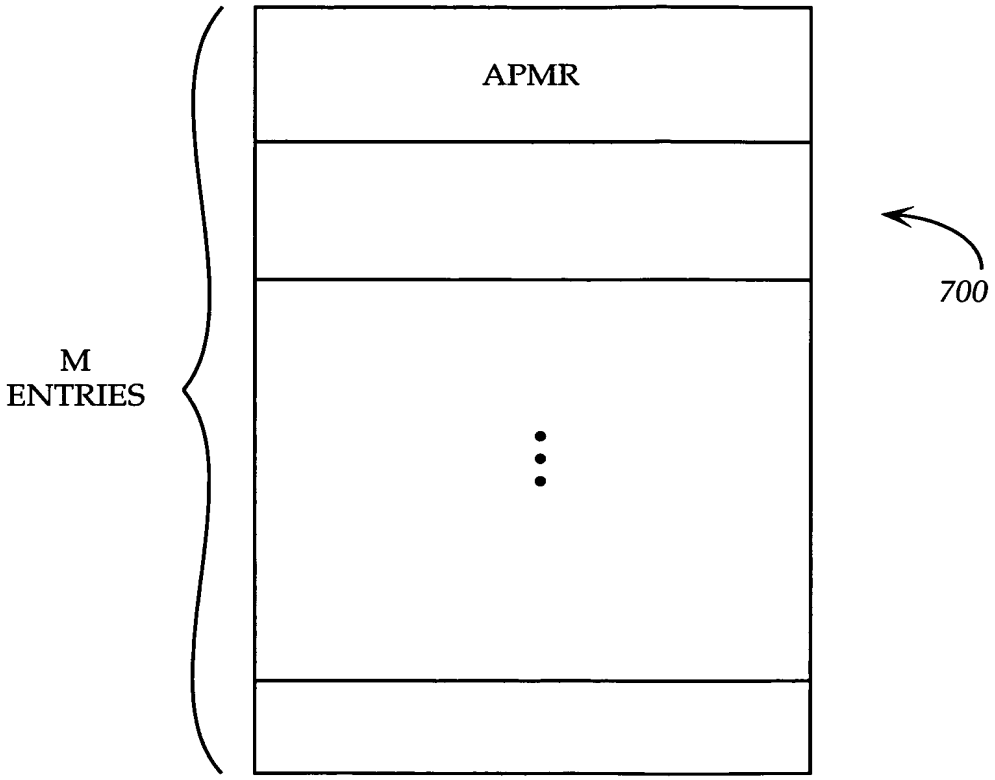

Figure 9

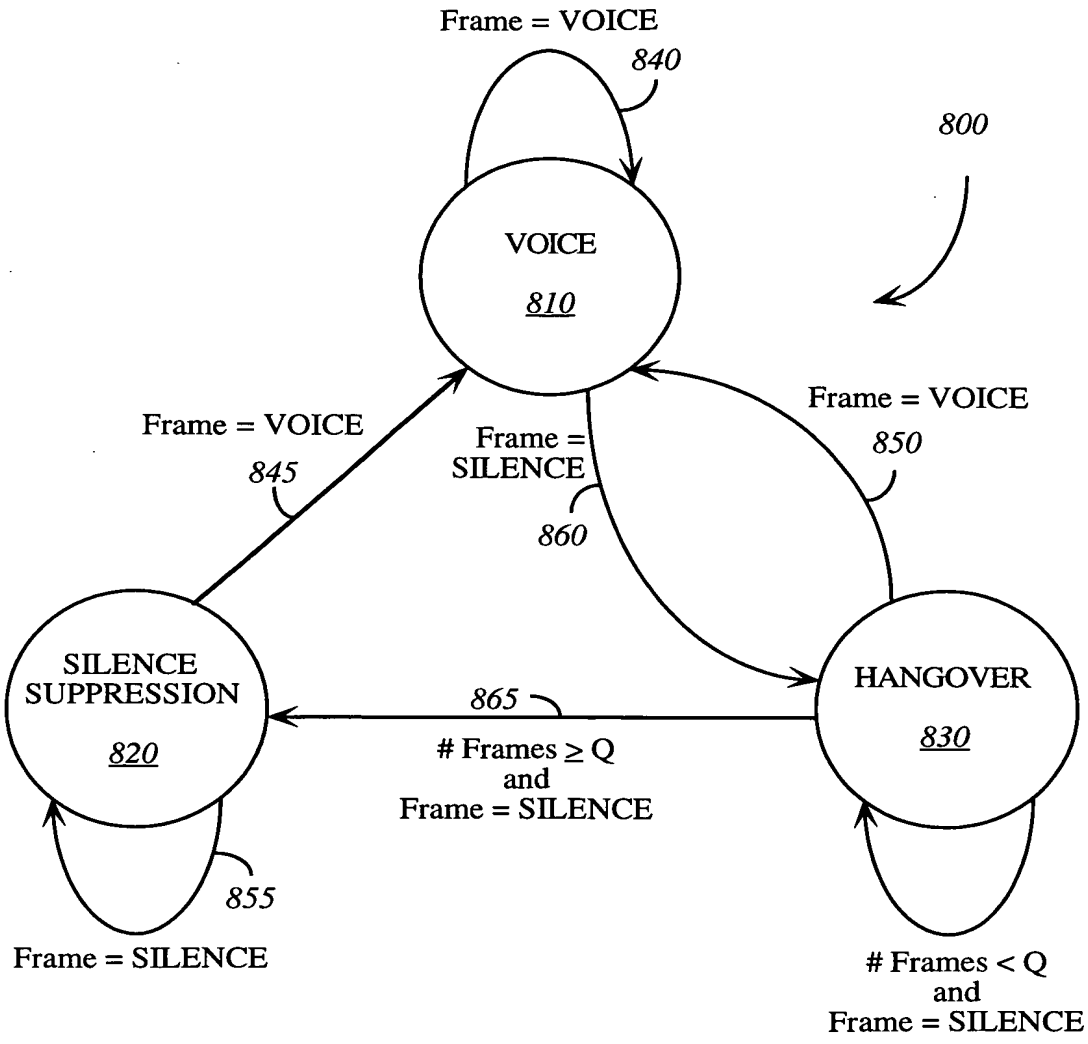
Frame = VOICE
840
800
VOICE
810
Frame = VOICE
845
Frame =
SILENCE
860
Frame = VOICE
850
SILENCE
SUPPRESSION
820
865
HANGOVER
830
Frames ≥ Q
and
Frame = SILENCE
855
Frame = SILENCE
# Frames < Q
and
Frame = SILENCE

Figure 10